R E M A R K S

Reconsideration of this application is respectfully requested.

Claims 14-17 were rejected under 35 USC 103 as being obvious in view of the combination of USP 6,005,506 ("Bazarjani et al") and USP 6,389,059 ("Smith et al").[1] This rejection, however, is respectfully traversed.

On pages 2 and 3 of the Final Office Action, the Examiner acknowledges that Bazarjani et al does not disclose an oscillation unit which includes a frequency determining section which determines a frequency f0 in accordance with an equation:

$$(|f1 \pm fi|/p1) = \ldots = (|fn \pm fi|/pn) = f0$$

where p1, ..., pn are positive integers and n is an integer equal to or greater than 2, wherein the equation defines a relationship between the respective frequencies f1, ..., fn of the arbitrary radio wave signals receivable by the radio wave reception unit and an intermediate frequency fi, and wherein the oscillation unit outputs a signal having the frequency f0, as recited in independent claim 14. The Examiner also acknowledges that Bazarjani et al does not disclose a multiplying unit which

[1] The Examiner does not mention Smith et al in the grounds for rejection set forth at the beginning of item 2 on page 2 of the Office Action; however, Smith et al is relied upon in the body of the rejection.

multiplies the signal having the frequency f0 output from the oscillation unit, as recited in independent claim 14.

On pages 4 and 6-7 of the Final Office Action, the Examiner acknowledges that Bazarjani et al does not disclose an oscillation unit which outputs a signal having a frequency f0 which is obtained from an equation:

$$(|f1 \pm fi|/p1) = \ldots = (|fn \pm fi|/pn) = f0$$

where p1, ..., pn are positive integers and n is an integer equal to or greater than 2, and wherein the equation defines a relationship between the respective frequencies f1, ... , fn of the arbitrary radio waves receivable by the radio wave reception unit and an intermediate frequency fi, as recited in independent claims 16 and 17.

The Examiner asserts that Smith et al contains the missing teachings of Bazarjani et al, and the Examiner asserts that it would have been obvious to modify Bazarjani et al in view of Smith et al to achieve the structure recited in each of independent claims 14, 16 and 17.

It is respectfully submitted, however, that Smith et al merely discloses a system which calculates the frequency of the local oscillation signal by obtaining an average of frequencies of the two input signals.

It is respectfully submitted that, in contrast to the claimed present invention, the system of Smith et al cannot

receive signals having three or more frequencies, and cannot fix the frequency f0 of the local oscillation signal and the intermediate frequency fi.

By contrast, with the structure recited in each of independent claims 14, 16, and 17, by using the determined fixed frequencies f0 and fi, the radio wave reception device can receive the signals of two, three or more frequencies.

For example, assume that the radio wave reception unit receives two signals having frequencies f1 and f2. In this case, as described in the specification at, for example, page 24 line 9 to page 26 line 3, the local oscillation frequency f0 is determined so that equation (2) is satisfied.

$$fi = |f1 \pm nf0| \text{ or } fi= |f2 \pm mf0| = f0 \qquad ...(2)$$

Equation (2) can be expressed by equations (3) to (6).

$$f0 = (f1 - f2)/\{-(m + n)\} \qquad ...(3)$$

$$f0 = (f1 + f2)/(m - n) \qquad ...(4)$$

$$f0 = (f1 - f2)/\{-(m - n)\} \qquad ...(5)$$

$$f0 = (f1 + f2)/(m + n) \qquad ...(6)$$

Assume f1=40 kHz and f2=60kHz.

When n=1 and m=2, f0=6.666kHz according to equation (3), f0=100kHz according to equation (4), f0=20kHz according to equation (5), and f0=33.333kHz according to equation (6).

By setting the local oscillation frequency f0 at one of the determined frequencies, a fixed intermediate frequency fi is

outputted when signals having f1=40kHz and f2=60kHz are supplied to frequency conversion circuit 4.

Next, assume the radio wave receiving unit receives three signals having frequencies f1, f2 and f3. In this case, as described in the specification at, for example, page 30 line 14 to page 31 line 17, the local oscillation frequency f0 and the intermediate frequency fi are determined so that equation (11) is satisfied.

$$(|f1 \pm fi|/p1) = (|f2 \pm fi|/p2) = (|f3 \pm fi|/p3) = f0 \quad ...(11)$$

Specifically, when f1=40kHz, f2=60kHz and f3=77.5kHz (frequencies of the long wave standard signals including time codes in German), equation (11) is expressed by equation (12)

$$(|40 \pm fi|/p1) = (|60 \pm fi|/p2) = (|77.5 \pm fi|/p3) = f0 \quad ...(12)$$

In equation (12), fi is determined so that p1, p2 and p3 are positive integers.

For example, if fi=22.5kHz, equation (12) is expressed by equation (13).

$$(|40\pm22.5|/p1) = (|60\pm22.5|/p2) = (|77.5\pm22.5|/p3) = f0 \quad ...(13)$$

Further, symbols in equation (13) are selected so that equation (14) is obtained, for example.

$$(62.5/p1) = (37.5/p2) = (100/p3) = f0 \quad ...(14)$$

Thus, if p1=5, p2=3, and p3=8, f0=12.5kHz.

Therefore, when f1=40kHz, f2=60kHz, and f3=77.5kHz, and the frequency f0 of the local oscillator signal is fixed at 12.5kHz,

and a fixed intermediate frequency fi=22.5 can be obtained when: (i) a signal having frequency f1 is supplied to the frequency conversion circuit 4, by multiplying the frequency f0 of the local oscillation signal by 5 (p1); (ii) a signal having frequency f2 is supplied to the frequency conversion circuit 4, by multiplying the frequency f0 of local oscillation signal by 3 (p2); and (iii) a signal having frequency f3 is supplied to the frequency conversion circuit 4, by multiplying the frequency f0 of local oscillation signal by 8 (p3).

Thus, according to the present invention, radio waves having not only 2 frequencies but also 3 or more frequencies can be received using the fixed local oscillation frequency f0 and fixed intermediate frequency fi.

It is respectfully submitted that Smith et al does not disclose, teach or suggest these features of the present invention, and it is respectfully submitted, therefore, that even if Smith et al were combinable with Bazarkamo et al in the manner suggested by the Examiner, the structural features recited in independent claims 14, 16 and 17 still would not be achieved or rendered obvious.

In view of the foregoing, it is respectfully submitted that the present invention as recited in claims 14, 16, and 17 and claim 15 depending from claim 14 clearly patentably distinguish over Bazarjani et al, and Smith et al under 35 USC 103.

RE: NOTICE OF APPEAL

A Notice of Appeal is submitted herewith so as to keep the application pending while the Examiner considers this Response.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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